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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,131	04/11/2001	Juin-Hwey Chen	1875.0250003	1569

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EXAMINER	
LEWIS, MICHAEL A	

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/832,131	CHEN, JUIN-HWEY	
	Examiner	Art Unit	
	Michael A Lewis	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 -24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 - 24 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 04. 2-4 D.7
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Marcellin et al (Advances in Speech Coding; Pub Kluwer Academic Publishers, March 5, 1992).

In regards to claims 1, 12 & 14, Marcellin et al. disclose a Noise Feedback Coding (NFC) system, a method of searching N predetermined Vector Quantization (VQ) codevectors for a preferred one of the N VQ codevectors to be used in coding a speech or audio signal (Fig.1), comprising the steps of: (a) predicting the speech signal to derive a residual signal (Page 48, Paragraph 3); (b) deriving a VQ input vector corresponding to a VQ error vector, based on the residual signal and a corresponding one of the N VQ codevectors (Page 48, Paragraph 3 – Page 49, Paragraph 2); (c) repeating steps (b) for each of the N VQ codevectors to produce N VQ error vectors corresponding to the N VQ codevectors(Page 50, Paragraphs 1 – 2); and (d) selecting the preferred VQ codevector as a VQ output vector corresponding to the residual signal based on

the N VQ error vectors (Page 50, Paragraph 2 – Page 51 – Paragraph 1; Eqn 10)*.

In regards to claims 2, 13 & 15, Marcellin et al. disclose the step of: deriving a VQ error energy value corresponding to each of the N VQ error vectors of step (b), wherein step (d) comprises selecting one of the N VQ codevectors corresponding to a minimum error energy value as the preferred VQ codevector (Page 49, Paragraph 1). *[Marcellin describes a relationship for the noise feedback filter where a factor μ is chosen with the goal of suppressing the noise spectrum in frequency bands where the input speech has low energy content, thereby decreasing the audibility of the reconstruction noise. The noise spectrum is used to calculate the VQ error energy values].*

In regards to claims 3 & 16, Marcellin et al. disclose a step (b) that comprises the steps of: (b)(i) combining the VQ input vector and the one of the N VQ codevectors to produce the corresponding VQ error vector; (b)(ii) filtering at least a portion of the VQ error vector to produce a noise feedback vector (Page 50, Paragraph 1 – 2); and (b)(iii) combining the noise feedback vector and the residual signal to produce the VQ input vector (Eqn. 7 - 10)*.

In regards to claims 5 & 18, Marcellin et al. disclose the filtering step (b)(ii) comprises filtering the VQ error vector based on an initial filter state corresponding to a previous preferred codevector.

In regards to claims 4, 9, 17 & 22, Marcellin et al. disclose the step (b)(v) comprises one of short-term filtering the VQ error vector, and long-term filtering the VQ error vector (Fig 1(P_S and P_L)).

In regards to claims 7 & 20, Marcellin et al. disclose the predicting step (a) comprises the steps of: (a)(i) predicting the speech signal to produce a predicted speech signal (Page 48, Paragraph 3 – Page 49, Paragraph 1); and (a)(ii) combining the predicted speech signal with the speech signal to produce the residual signal (Fig 1*[r_i])* *[The residual is the error signal that is the difference between the actual speech signal and the modeled/filtered version of the speech signal]*.

In regards to claims 8 & 21, Marcellin et al. disclose the step (b) comprises the steps of: (b)(i) combining the residual signal with a noise feedback vectors to produce a predictive quantizer input vector (Fig 1*[q_i d_i]*)) (b)(ii) predicting the predictive quantizer input vector to produce a predicted, predictive quantizer input vector (Fig 1*[d_i; Q]*); (b)(iii) combining the predictive quantizer input vector with the predicted, predictive quantizer input vector to produce the VQ input

vector(Fiq 1 *[d_i; Q; d_{iout}]*); (b)(iv) combining the predicted, predictive quantizer input vector with the VQ codevector to produce a predictive quantizer output vector (Fig 1*[d_i; Q; d_{iout}]*); and (b)(v) filtering a VQ error vector corresponding to the predictive quantizer output vector to produce the noise feedback vector ((Page 48, Paragraph 3 – Page 49, Paragraph 1; Fig 1 *[d_{iout}; q_i))[Fig 1.*

In regards to claims 10 & 23, Marcellin et al. disclose the predicting in step (b)(ii) is based on an initial predictor state corresponding to a previous preferred codevector (Page 49, Paragraph 2); and the filtering in step (b)(v) is based on an initial filter state corresponding to the previous preferred codevector (Fig 1, *[$x_i = s_i - s_{i-1}$ where is s_{i-1} is the previous codevector]*).

In regards to claims 6, 11, 19 & 24, Marcellin et al. disclose the step (b) further comprises the steps of: restoring the initial predictor state before each pass through step (b)(ii)(Fig 1 ($d_i=s_i - \hat{s}_{i-1} - \hat{x}_{i-1}$)); and restoring the initial filter state before each pass through step (b)(v) (Fig 1 ($q_i = d_i - \hat{d}_i$; N; $d_i=s_i - \hat{s}_{i-1} - \hat{x}_{i-1}$))*[All these relationships have feedback of previous states that resets/restores to the initial state].*

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watts et al.	IEEE (CH2535-3/88/0000-0275)
Chen	U.S. Patent (5745871 & 5651091& 20020069052)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A Lewis whose telephone number is 703 305-8730. The examiner can normally be reached on Monday through Friday, 8:30 am – 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on (703)305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lewis A Michael
Examiner
Art Unit 2655

Mal

5/1/2004

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